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ABSTRACT

This resource packet presents information and resources on ancient Egypt. The bibliography includes readings divided into five sections: (1) "General Information" (46 items); (2) "Religion" (8 items); (3) "Art" (8 items); (4) "Hieroglyphics" (6 items); and (5) selections "For Young Readers" (11 items). The packet also includes readings on "Egyptian Mummies" and "The Egyptian Pyramid." (DQE)

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National Museum of Natural History
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EGYPTIAN MUMMIES

The methods of embalming, or treating the dead body, that the ancient Egyptians used is called mummification. Using special processes, the Egyptians removed all moisture from the body, leaving only a dried form that would not easily decay. It was important in their religion to preserve the dead body in as lifelike a manner as possible. So successful were they that today we can view the mummified body of an Egyptian and have a good idea of what he or she looked like in life, 3000 years ago.

Mummification was practiced throughout most of early Egyptian history. The earliest mummies from prehistoric times probably were accidental. By chance, dry sand and air (since Egypt has almost no measurable rainfall) preserved some bodies buried in shallow pits dug into the sand. About 2600 B.C., during the Fourth and Fifth Dynasties, Egyptians probably began to mummify the dead intentionally. The practice continued and developed for well over 2,000, into the Roman Period (ca. 30 B.C. - A.D. 364). Within any one period the quality of the mummification varied, depending on the price paid for it. The best prepared and preserved mummies are from the Eighteenth through the Twentieth Dynasties of the New Kingdom (ca. 1570 - 1075 B.C.) and include those of Tutankhamen and other well-known pharaohs. It is the general process of this period that shall be described here.

Process

The mummification process took seventy days. Special priests worked as embalmers, treating and wrapping the body. Beyond knowing the correct rituals and prayers to be performed at various stages, the priests also needed a detailed knowledge of human anatomy.

The first step in the process was the removal of all internal parts that might decay rapidly. The brain was removed by carefully inserting special hooked instruments up through the nostrils in order to pull out bits of brain tissue. It was a delicate operation, one which could easily disfigure the face. The embalmers then removed the organs of the abdomen and chest through a cut usually made on the left side of the abdomen. They left only the heart in place, believing it to be the center of a person's being and intelligence. The other organs were preserved separately, with the stomach, liver, lungs, and intestines placed in special boxes or

jars today called canopic jars. These were buried with the mummy. In later mummies, the organs were treated, wrapped, and replaced within the body. Even so, unused canopic jars continued to be part of the burial ritual.

The embalmers next removed all moisture from the body. This they did by covering the body with natron, a type of salt which has great drying properties, and by placing additional natron packets inside the body. When the body had dried out completely, embalmers removed the internal packets and lightly washed the natron off the body. The result was a very dried-out but recognizable human form. To make the mummy seem even more life-like, sunken areas of the body were filled out with linen and other materials and false eyes were added.

Next the wrapping began. Each mummy needed hundreds of yards of linen. The priests carefully wound the long strips of linen around the body, sometimes even wrapping each finger and toe separately before wrapping the entire hand or foot. In order to protect the dead from mishap, amulets were placed among the wrappings and prayers and magical words written on some of the linen strips. Often the priests placed a mask of the person's face between the layers of head bandages. At several stages the form was coated with warm resin and the wrapping resumed once again. At last the priests wrapped the final cloth or shroud in place and secured it with linen strips. The mummy was complete.

The priests preparing the mummy were not the only ones busy during this time. Although the tomb preparation usually had begun long before the person's actual death, now there was a deadline, and craftsmen, workers, and artists worked quickly. There was much to be placed in the tomb that a person would need in the Afterlife. Furniture and statuettes were readied; wall paintings of religious or daily scenes were prepared; and lists of food or prayers finished. Through a magical process, these models, pictures, and lists would become the real thing when needed in the Afterlife. Everything was now ready for the funeral.

As part of the funeral, priests performed special religious rites at the tomb's entrance. The most important part of the ceremony was called the "Opening of the Mouth". A priest touched various parts of the mummy with a special instrument to "open" those parts of the body to the senses enjoyed in life and needed in the Afterlife. By touching the instrument to the mouth, the dead person could now speak and eat. He was now ready for his journey to the Afterlife. The mummy was placed in his coffin, or coffins, in the burial chamber and the entrance sealed up.

Such elaborate burial practices might suggest that the Egyptians were preoccupied with thoughts of death. On the contrary, they began early to make plans for their death because of their great love of life. They could think of no life better than the present, and they wanted to be sure it would continue after death.

But why preserve the body? The Egyptians believed that the mummified body was the home for this soul or spirit. If the body was destroyed, the spirit might be lost. The idea of "spirit" was complex involving really three spirits: the ka, ba, and akh. The ka, a "double" of the person, would remain in the tomb and needed the offerings and objects there. The ba, or "soul", was free to fly out of the tomb and return to it. And it was the akh, perhaps translated as "spirit", which had to travel through the Underworld to the Final Judgment and entrance to the Afterlife. To the Egyptian, all three were essential.

Who Was Mummified

After death, the pharaohs of Egypt usually were mummified and buried in elaborate tombs. Members of the nobility and officials also often received the same treatment, and occasionally, common people. However, the process was an expensive one, beyond the means of many.

For religious reasons, some animals were also mummified. The sacred bulls from the early dynasties had their own cemetery at Sakkara. Baboons, cats, birds, and crocodiles, which also had great religious significance, were sometimes mummified, especially in the later dynasties.

The Study of Mummies Today

Ancient writers, modern scientists, and the mummies themselves all help us better understand the Egyptian mummification process and the culture in which it existed. Much of what we know about the actual process is based on the writings of early historians such as Herodotus who carefully recorded the process during his travels to Egypt around 450 B.C. Present-day archaeologists and other specialists are adding to this knowledge. The development of x-rays now makes it possible to x-ray mummies without destroying the elaborate outer wrappings. By studying the x-rays or performing autopsies on unwrapped bodies, experts are learning more about diseases suffered by the Egyptians and their medical treatment. A better idea of average height and life span comes from studying the bones. By learning their age at death, the order and dates of the Egyptian kings becomes a little clearer. Even ties of kinship in the royal line can be suggested by the striking similarities or dissimilarities in the skulls of pharaohs that followed one another. Dead now for thousands of years, the mummy continues to speak to us.

For Further Reading: (*more technical books)

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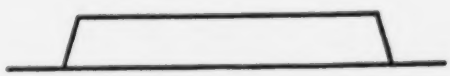
THE EGYPTIAN PYRAMID

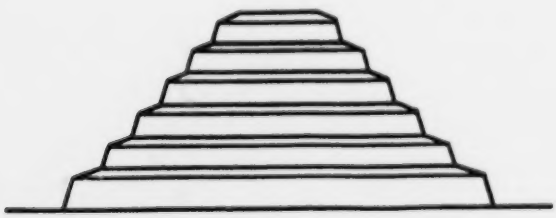
The pyramids of Egypt fascinated travellers and conquerors in ancient times and continue to inspire wonder in the tourists, mathematicians, and archeologists who visit, explore, measure and describe them.

Tombs of early Egyptian kings were bench-shaped mounds called mastabas. Around 2780 B.C., King Djoser's architect, Imhotep, built the first pyramid by placing six mastabas, each smaller than the one beneath, in a stack to form a pyramid rising in steps. This Step Pyramid stands on the west bank of the Nile River at Sakkara near Memphis. Like later pyramids, it contains various rooms and passages, including the burial chamber of the king.



MASTABA

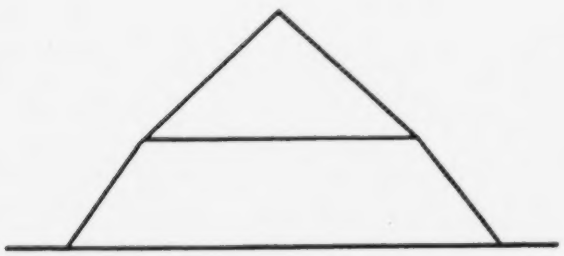
The transition from the Step Pyramid to a true, smooth-sided pyramid took placed during the reign of King Snefru, founder of the Fourth Dynasty (2680-2560 B.C.). At Medum, a step pyramid was built, then filled in with stone, and covered with a limestone casing. Nearby at Bahshur, construction was begun on a pyramid apparently planned to have smooth sides. About halfway up, however, the angle of incline decreases from over 51 degrees to about 43 degrees, and the sides rise less steeply, causing it to be known as the Bent Pyramid. The change in angle was probably made during construction to give the building more stability. Another great pyramid was built at Dahshur with its sides



STEP PYRAMID

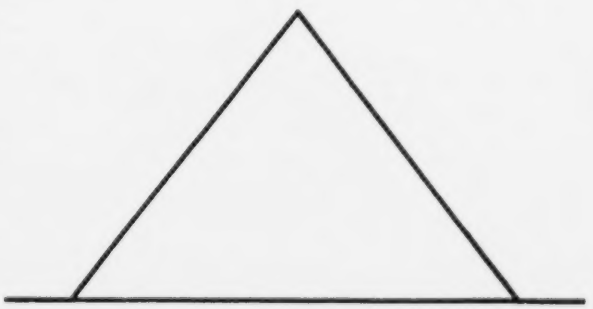
rising at an angle of somewhat over 43 degrees, resulting in a true, but squat looking pyramid.

The largest and most famous of all the pyramids, the Great Pyramid at Giza, was built by Snefru's son, Khufu, known also as Cheops, the later Greek form of his name. The pyramid's base covered over 13 acres and its sides, which rose at an angle of 51 degrees 50 feet, were over 755 feet long. It originally stood over 481 feet high. Scientists estimate that its stone blocks average over two tons apiece, with the largest weighing as much as fifteen tons each. Two other major pyramids were built at Giza, for Khufu's son, King Khafre (Chephren), and a successor of Khafre, Menkaure (Mycerinus). Also located at Giza is the famous Sphinx, a massive statue of a lion with a human head, carved during the time of Khafre.



BENT PYRAMID

Pyramids did not stand alone but were part of a group of buildings which included temples, chapels, other tombs, and massive walls. Remnants of funerary boats have also been excavated; the best preserved is at Giza. On the walls of Fifth and Sixth Dynasty pyramids are inscriptions known as the Pyramid Texts, an important source of information about Egyptian religion. The scarcity of ancient records, however, makes it difficult to be sure of the uses of all the buildings in the pyramid complex or the exact burial procedures. It is thought that the king's body was brought by boat up the Nile to the pyramid site and probably mummified in the Valley Temple before being placed in the pyramid for burial.



TRUE PYRAMID

There has been speculation about pyramid construction. Egyptians had copper

There has been speculation about pyramid construction. Egyptians had copper tools such as chisels, drills, and saws that may have been used to cut the relatively soft stone. The hard granite, used for burial chamber walls and some of the exterior casing, would have posed a more difficult problem. Workmen may have used an abrasive powder, such as sand, with the drills and saws. Knowledge of astronomy was necessary to orient the pyramids to the cardinal points, and water-filled trenches probably were used to level the perimeter. A tomb painting of a colossal statue being moved shows how huge stone blocks were moved on sledges over ground first made slippery by liquid. The blocks were then brought up ramps to their positions in the pyramid. Finally, the outer layer of casing stones was finished from the top down and the ramps dismantled as the work was completed.

Most of the stone for the Giza pyramids was quarried on the Giza plateau itself. Some of the limestone casing was brought from Tura, across the Nile, and a few of the rooms were cased with granite from Aswan. Marks of the quarry workers are found on several of the stone blocks giving names of the work gangs such as "craftman-gang". Part-time crews of laborers probably supplemented the year-round masons and other skilled workers. The Greek historian Heroditus reported in the fifth century B.C. that his Egyptian guides told him 100,000 men were employed for three months a year for twenty years to build the Great Pyramid; modern estimates of the number of laborers tend to be much smaller.

Pyramid building was at its height from the Fourth through the Sixth Dynasties. Smaller pyramids continued to be built for more than one thousand years. Scores of them have been discovered, but the remains of others are probably still buried under the sand. As it became clear that the pyramids did not provide protection for the mummified bodies of the kings but were obvious targets for grave robbers, later kings were buried in hidden tombs cut into rock cliffs. Although the magnificent pyramids did not protect the bodies of the Egyptian kings who built them, the pyramids have served to keep the names and stories of those kings alive to this day.

FOR MORE INFORMATION

Specifically on pyramids:

Edwards, I.E.S. The Pyramids of Egypt. Rev. 1961. First published in 1947. Baltimore: Penguin Books.

This is a basic, detailed description illustrated with drawings and photographs. It includes a list of major pyramids, index, and an extensive bibliography.

Fakhry, Ahmed. The Pyramids. Chicago: University of Chicago Press, 1961.

A readable account, well illustrated with drawings and photographs. It contains an index but no bibliography.

On ancient Egypt, with good chapters on pyramids:

Aldred, Cyril. Egypt to the End of the Old Kingdom. New York: Thames and Hudson, Inc., 1965.

This book covers the history and culture of Egypt from the earliest settlement to about 2000 B.C. Illustrated with both black and white and colored photographs and drawings. Also includes a bibliography and index.

Casson, Lionel and the Editors of Time-Life Boos. Ancient Egypt. New York, 1965.

This book is filled with photographs, drawings, charts, and maps, as well as a bibliography and extensive index.

For younger readers:

Macaulay, David. Pyramid. Boston: Houghton Mifflin Co., 1975.

Illustrated with detailed drawings., this book describes the construction of an imaginary but typical Egyptian pyramid.

Weeks, John. The Pyramids. (A Cambridge Introduction to the History of Mankind Topic Book, General Editor, Trevor Cairns.) New York: Cambridge University Press, 1971.

This short book explains how pyramids were built, their technology, materials, and workers. A brief but good background, well illustrated with drawings and photographs.

(This leaflet was prepared by Department of Anthropology volunteer Alice Padwe, under the supervision of Dr. Gus Van Beek, Curator of Old World Archaeology.)

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